and many contain several different colored substances which can be separated or perfectly well distinguished. Fully twenty have such well-marked optical characters that they could be recognized without difficulty in other plants; but of these only one is known to occur in any plant not a fungus. This is the fine orange color, soluble in bi-sulphide of carbon, found in *Calocera viscosa*, which agrees perfectly with the more orange-colored xanthophyll of some faded leaves, and of the exterior layer of the root of the carrot. Closely allied species sometimes contain two different kinds of coloring matter in common, but very often one or more differ; while at the same time species belonging to somewhat widely separated genera are occasionally colored by identical substances. Notwithstanding this, on the whole, there appears to be a very decided connection between the general organization of the plant and the particular kind of coloring-matter developed in it.— A. W. B.

New Stations of Rare Plants.—*Saxifraga aizoides.* Warsaw Glen, Wyoming Co., N. Y. Very abundant high up on shaded, wet rocks. (Genesee Shales.) Also on the west bank of the Genesee River at Portage, Wyoming Co., N. Y. between the middle and lower falls where it occurs, for nearly a mile, on the high cliffs. Found also on the Gardeau Bluffs (425 ft. high) still further down the river.

Lythrum Salicaria. Marshes at the head of Cayuga Lake.

Primula Mistassinca. South bank of Fall Creek, Ithaca, just below the Triphammer Fall, — abundant.

Pinguicula vulgaris. — With the preceding, and also in several places on Cascadilla Creek, Ithaca.

Sisymbrium canescens. Enfield Glen, Tompkins Co.; Watkins Glen, Schuyler Co., N. Y.

Phlox subulata. Everywhere about Ithaca. Also on the Gardeau Bluffs, Wyoming Co., N. Y.

Sedum ternatum. A few specimens in the glen of Six Mile Creek, Ithaca — obviously indigenous.—D. S. Jordan, *Instructor in Botany, Cornell University.*

ZOOLOGY.

A Rare Animal.—On Saturday, February 17, 1872, there was brought to me an animal I had never seen before, and which I thought was new to this region. In general appearance it very

much resembled a fox, except that it was smaller and more slender in its proportions, and it had a ringed tail as long as its body. The facial expression reminded me of a raccoon. Upon referring to the "Quadrupeds of America" I found it to be an animal of which it was the sole representative both in genus and species, for it proved to be the *Bassaris astuta*, the generic name being derived from a word signifying a little fox and the specific name having reference to its manners and habits. It is described as an inhabitant of Mexico and Western Texas, was originally found in the vicinity of the City of Mexico and referred to by the old Spaniard Hernandez. It was first brought to the attention of naturalists by Mr. Deppe who, in 1826, sent a specimen to Berlin from Western Texas. The *first* scientific description was by Lichenstein, who named it as above. It is carnivorous, subsisting on small animals, birds and insects. Red river, in Texas, is given as its *extreme* northern geographical limit, and it is an interesting fact in natural history to find such an extreme southern species existing in full size and vigor in this so much more northern latitude, so far from what has been considered its native habitat. It suggests some interesting questions. Is it an accidental wanderer from its far-off home? This can hardly be, for, although probably full grown, its teeth indicate it as a young animal; and the great distance to be travelled from Texas to Central Ohio, and the time necessarily consumed in the journey, as well as the obstacles of great rivers to be crossed, are against the theory of a single and chance migration from its original locality. Have we here, then, another example of the wonderful power of nature which enables the animal "in the struggle for life" to adapt itself to the varying conditions and circumstances with which it is surrounded? For our specimen is thickly clothed with fur, while its progenitors, like most other warm climate species, were probably thinly covered with hair, and this fact is against any *recent* migration, for surely more than one season would be required to convert a simply haired, into a fur-bearing animal. I conclude our specimen was native born in the locality where it was found, and if others of its species in Mexico and Texas are without fur, our animal is a descendant from those which, perhaps, through many generations, have been gradually fitted for a residence in a more northern climate.

The little animal of which I have been speaking measured thirty-

two inches from the end of its nose to the tip of the tail, and when living would stand, I think, about seven inches in height. Its body was sixteen and one-half and its tail fifteen and one-half inches in length, with sixteen rings alternately black and white. It was killed in Fairfield County, where I understand there were two of them, and as this one is a male, the other was most probably a female, and it is to be hoped may yet be captured.—J. SULLIVANT, *Columbus, Ohio.*

GEOGRAPHICAL DISTRIBUTION OF BASSARIS ASTUTA.—A late number of the "Ohio State Journal" contains an interesting account by Prof. J. Sullivant, of the capture of this animal in Fairfield County, Ohio, a locality considerably removed from the habitat of the species as hitherto known. This curious creature, the only American representative of the *Viverridæ* or numerous family of the civet cats, etc., of the old world (though not belonging strictly to that group of animals), has always been supposed to be a Mexican form, restricted in its northern range to Texas, Arkansas and corresponding latitudes, thence westward. (See Audubon and Bachman, Quad. of N. A. ii, p. 314, pl. xcviii; Baird, Mam. of N. A., p. 147; Coues, Am. Nat. i, p. 351.) As corroborating Professor Sullivant's article, which gives, besides, several interesting facts and suggestions, we may state that Mr. J. A. Allen, of Cambridge, during his recent explorations in the West, obtained unquestionable evidence of the occurrence of *Bassaris* in the vicinity of Fort Hays, Kansas.—ELLIOTT COUES.

COLORADO POTATO BEETLE.—I notice that, in the April No. of the AMERICAN NATURALIST, my friend Sanborn Tenney is puzzled to account for the sudden disappearance of the Colorado Potato Beetle at Niles, Mich. The following extract from my fourth Report may give him some light on the subject. They have not disappeared for good, however, but will doubtless present themselves the coming season, though, mayhap, in greatly reduced numbers.

But if the bugs themselves were unprecedentedly numerous, so also were their natural enemies. I passed through potato patches where almost every *Doryphora* larva had upon the back of the neck, just behind the head one or more eggs of its deadly parasite *Lydella doryphorœ* Riley (Rep. I, Fig. 48), which is the only genuine parasite yet known to attack it; and what with the work of such natural enemies and the efforts of man, the pest suddenly

became about as scarce as it had been numerous before. All accounts agree as to the sudden diminution of its numbers in the month of June, and so far as Missouri is concerned, it did not increase to any alarming extent during the rest of the year. The disappearance was, in many sections, so thorough that it is very questionable whether man and natural enemies should alone be credited with the cause. The spring was uncommonly dry and warm, and, so far, was favorable to the increase of the insect; but the summer drought and extreme heat which followed were quite unfavorable to its multiplication. Warm dry weather in spring is congenial to the growth and well-being of the larvæ as they swarm upon and devour our vines; but at a later stage of their lives when they have to enter the earth to undergo their transformations, a great many of them will undoubtedly die if the earth continues excessively dry and hot. They will, in short, be dried and baked to death. Those who have had large experience in breeding insects, and who understand the importance of coolness, and especially of moisture in the successful development of those which transform underground, feel perfectly warranted in such an inference, even though no systematic and accurate experiments have been made to test its validity. The extreme heat and dryness of the season, furnished a good opportunity to employ the sun-scalding remedy, and it was fully shown that in an intense summer sun, the larvæ and even the beetles will very generally die if knocked from the vines on to the dry and heated ground, especially if the vines have been well hilled; and it is doubtless because the insect cannot thrive when the thermometer ranges near 100° F. that the southern columns of the spreading army extend far more slowly than the northern. Moreover, the past summer was not the first one in which the sudden disappearance of this insect under conditions of heat and drought has been noticed; for a similar state of things occurred in 1868, and Dr. Henry Shimer, of Mt. Carroll, Ill., then attributed such disappearance to the dryness of the season.* We are justifiable, therefore, in concluding that while dryness and warmth may be very pleasant and agreeable to the Colorado Potato Beetle in the spring or in the fall, they are nevertheless very destructive to it when intensified in the summer months.— C. V. Riley, *St. Louis.*

Singing Maryland Marmot.— For the last forty years the fact of the common Maryland Marmot, or Woodchuck, being able to sing like a canary bird, but in a softer, sweeter note, has been quite familiar to myself, and others who could be brought forward as witnesses. Mr. Lockwood seems to have an ear to hear, which calls out for the thousandth time our statement. Mr. Audubon Jr. is the only zoological naturalist who would lend a respectful

* Am. Nat. vol. iii, pp. 91-99.

attention, to what profit we know not. For my part I am prepared to believe in any amount of *animal* capacity: not a tithe of what is already known can be safely communicated to this generation which we hope to show ere long. Neither "the whistling of the Woodchuck in its burrow," by which we understand is meant the surprise or alarm chuckle, nor the loud challenge or pseudo-bark of the Marmot of the Sierra Nevada Mts. etc., are at all alluded to in the following remarks.

When a lad we caught a very young Marmot. Mother prudently forecasting care, etc., stoutly refused to allow the pet. Knowing the warm side of a mother's heart, we wisely resolved to try a little *finesse* in order to gain parental permission, so my older brother and myself took a saucer of milk, for we were sure, if she saw it take hold with both infant paws like a little babe as we had, the victory was ours. Brother got all things ready, and I insisted she should *just see it eat*. Her kind heart yielded. "Wouldn't have it die for the world; it took hold of the edge with both hands so like a little child." It was raised. It had a seat in the little high chair at the children's table full oft. Its earnest and restless concupiscent purr as it scented sweet cake and fragrant viands was wonderful. At length it became as familiar as the family cat and finally burrowed under the doorstep. My impression is now, and has always been, that it was a female. I used to watch the pet very closely to see how it sang, as children are apt to do. There was a slight moving of the nostrils and lips and consequently whiskers with an air of unmistakable happy or serene enjoyment. I question much if this is altogether unknown to others, *always excepting naturalists*.—A. KELLOGG, M.D., *San Francisco*.

THE POSITION OF THE CENTRE OF GRAVITY IN INSECTS.—M. Felix Plateau has contributed an important memoir on this subject to the "Bibliothèque Universelle Archives des Sciences Physiques et Naturelles," of which the following is an abstract of the most important conclusions arrived at. (1.) The centre of gravity in an insect is situated in the vertical and medial plane which passes along the longitudinal axis of the body. (2.) It occupies a position almost identical in insects of the same species, the same sex, and in the same attitude. (3.) The exterior form of the body rarely permits the determination of the exact position of the centre of gravity without experiment. (4.) It does not occupy

the same position in the two sexes of one species. It is sometimes less and sometimes more to the rear in the females than in the males and its situation depends on the relations existing between the different dimensions of the individuals. (5.) While standing, the centre of gravity is placed at the centre of the abdomen, or in the posterior portion of the thorax, and usually in the centre of the length of the body. (6.) When an insect is walking its centre of gravity undergoes constant displacement about a mean point, but the distances of displacement are too small to be measured. (7.) The displacement of the centre of gravity when an insect passes from a state of repose to that of flight, cannot be ascertained except with those species where the wings lie folded on the back when in a state of repose. The displacement is horizontal, and from back to front. (8.) During active flight, the centre of gravity oscillates continually about a mean position which corresponds with the instants when the extremities of the wings pass the point of crossing of the S-shaped curve which they describe in the air. (9.) In aquatic insects it is nearer to the lower than to the upper surface of the body. (10.) During swimming, the movements of the posterior feet, acting like oars, determine the oscillation of the centre of gravity around a mean position, which answers to the position of the swimming feet placed at the middle of their course.— A. W. B.

Occurrence of the Scissor-tail Flycatcher in New Jersey. On the 15th of April last, a magnificent specimen of the "Scissor-tail" (*Milvulus forficatus* Swainson), was shot on the Crosswicks Meadows, five miles south of Trenton, N. J. The specimen was a male bird, in full health and feather; weighing two and one-half ounces avoirdupois, and measuring thirteen and one-half inches from the tip of the beak to the extremity of the tail. The bird, when captured, was busily engaged in picking semi-dormant insects from the bark of the trees; creeping about very much as is the custom of the *Certhia Americana;* and all the while, opening and shutting the long scissor-like tail. The stomach, on examination, proved to be full of *small* coleoptera, insects, eggs and flies. The specimen has been mounted, and will be forwarded to you in a few days.

On reference to the Pacific R. R. Rep. vol. ix, page 168, we find that Prof. Baird states that the allied species, *Milvulus tyrannus*

Bon. is entitled to a place in the United States Fauna, "on account of two specimens in New Jersey, captured, at long intervals; and one or two seen by Mr. Audubon in the South-west;" but no mention is made of this species we have taken here in New Jersey, being found farther north than Texas, where it is quite abundant. We have already called attention to the fact of New Jersey being "a sort of neutral ground in the matter of geographical distribution;" and the occurrence of this southern flycatcher is an additional proof of the fact; the more so, because it was taken when the weather was chilly, and during a spring more backward than any for the past twelve years. It might perhaps have been easier to account for the presence of this bird had the season been far advanced, or had a southerly wind or storm prevailed for a week or ten days previously; but the very opposite of all this had been in reality the case. — CHARLES C. ABBOTT.

HABITS OF THE YOUNG CUCKOO.— Mr. Hugh Blackborn, of Glasgow, Scotland, has published an account of a remarkable contest witnessed between the young of the cuckoo and of the common meadow pipit or titlark. The nests contained two pipits' eggs and one cuckoo's, the former of which were hatched first. Within forty-eight hours after the hatching of the cuckoo, it had expelled both the pipits from the nests and on their being replaced struggled about till it got its back under one of them, when it climbed backwards directly up the open side of the nest, and pitched the pipit from its back on to the edge, finally forcing it off. After this had been done several times, the pipits were at length found dead and cold, and when they were then replaced the cuckoo made no effort to eject them. The singular part of the affair is that the cuckoo was perfectly naked and blind, while the pipits had well-developed quills on the wings and back, and had bright eyes partially open; yet they seemed quite helpless under the manipulations of the cuckoo, which looked a much less developed creature. Each time, the cuckoo, though perfectly blind, made with unerring certainty for the open side of the nest, the only part where it could throw its burden down the bank on which the nest was placed.— A. W. B.

GREAT AUK (*Alca impennis*).— Professor James Orton in his article on the Great Auk, AMERICAN NATURALIST, Dec., 1869, page 540, says: — "Once very abundant on both shores of the North

Atlantic, it is now believed to be entirely extinct, none having been seen or heard of alive since 1844, when two were taken near Iceland."

While at Montreal in Aug., 1871, Mr. Alfred Lechevallier, a naturalist who has collected largely in Labrador, informed me of a specimen in his possession of this supposed to be extinct species. It was found dead in the vicinity of St. Augustin, Labrador coast, in November, 1870, by some Indians from whom Mr. Lechevallier obtained it while collecting there at the time. It was a male, and although in a very bad state he preserved it and has recently sold it to a naturalist in France, who is to send it to Austria.

Although it was a very poor specimen he realized two hundred dollars. — RUTHVEN DEANE, *Cambridge, Mass.*

ACTIVITY OF TROUT AND SALMON. — Frank Buckland says of the American brook trout: "These American fish are much more active and, I was going to write — it may be even so — intelligent fish than the salmon or trout (English). Possibly they may have imbibed some of the national American sharpness. I think I shall consult them on the Alabama question."

I myself, while manipulating trout and salmon, at Orland, last November, learned that the former, although not a quarter the size of the salmon, was the more difficult fish to handle. This was partially owing to the plump shape of the trout, which caused the hand to slip off over the head or tail, and to a greater extent to its superior activity. The facility with which salmon yielded to manipulation was an agreeable surprise. — C. G. A.

THE CAROLINA HEMIRHAMPHUS. — My observations confirm and extend Dr. Coues' note (Am. Naturalist, vi., p. 49,) on this species. According to my note-book the fish was first seen by me Sept. 21, 1871, when several specimens were taken in a seine with mullet, and became very abundant about the last of the month. At this season vast schools of the Bluefish (*Pomatomus saltator*) were observed feeding upon the still vaster schools of the *Hemirhamphus*, which appear to be their favorite food. I have seen a Bluefish, when drawn into a boat, eject from its mouth as many as eight good-sized Hemirhamphi.—H. C. YARROW, M.D., U.S.A., *Fort Macon, N. C.*

POUCHED RAT (*Perognatus fasceatus*).— This is not very abundant in Texas. They dwell in burrows eight to ten inches deep,

with subterranean galleries, having several outlets. It has a large head, full lustrous black eyes, teeth exceedingly sharp and well set. Ears round and one-fourth of an inch long, tail two inches long, clavate and tufted with short, stiff hair; feet long, five fingers, body well formed with muscular arms and thighs.— G. LINCECUM, *Long Point, Texas. — Communicated by the Smithsonian Institution.*

A NEW BIRD TO THE UNITED STATES. An esteemed correspondent, Lieutenant Charles Bendire, U. S. Army, stationed at Tucson, Arizona, writes to me concerning an owl of the genus *Glaucidium* which he procured in that locality. It differs, he says, from Cassin's description of *G. gnoma* as follows: — "The tail-feathers, which are brown, are distinctly barred with fulvous, or rather rufous, fading into white at the edges of the inner webs. The feathers of the head are ashy-brown with very narrow longitudinal stripes of white. The quills of the wing are brown, their outer webs with small triangular spots of pale rufous, the inner webs with larger spots of the same shape, ashy white fading to pure white on the edges." He was thoughtful enough to enclose some of the characteristic feathers, and on my showing them to Mr. Ridgway, now our highest authority on American birds of prey, he pronounced them to be those of *Glaucidium ferrugineum*, a form not hitherto found within our limits. — ELLIOTT COUES.

THE NEST, EGGS, AND BREEDING HABITS OF HARPORHYNCHUS CRISSALIS. In a later communication, containing much novel and interesting information upon the birds of southern Arizona, Lieutenant Bendire furnishes a most excellent biography of this species, which I lose no time in making public, since nothing of special consequence has hitherto been recorded. Although the bird is still extremely rare in collections, Lieutenant Bendire took no less than six nests with eggs during the fourth week of March last.

"The nest," he writes, "is externally composed of dry sticks, some of which are fully a quarter of an inch thick; the lining consists exclusively of dry rotten fibres of a species of wild hemp, or Asclepias; in none of the nests did I find any roots, leaves or hair. The inner diameter of the nest is about three inches, with a depth of about two inches. Taking it all together, it is not very artistically constructed. None of the nests were more than three feet from the ground. In two cases I found nests in a dense bushy thicket of wild currant, twice again in willow bushes, and

in another instance in an ironwood bush. The red-vented thrush is very shy, hard to observe, restless and quick in its movements. It appears to prefer damp, shady localities near water courses, and confines itself principally to spots where the wild currant is abundant. At present [Mar. 27], it appears to feed principally on insects. Its flight is short — only long enough to enable the bird to reach the next clump of bushes. It seems to have more frequent recourse to running than to flying, and dives through the densest undergrowth with great facility and swiftness. The usual number of eggs laid by this bird (strange as it may appear) is only *two*, of an emerald green color, and unspotted. The first set I found [Mar. 22] contained small embryos, the third [next day] was only a single egg with a very large embryo; it was broken, and must have been laid as early as the tenth of March. From the number of nests taken it would appear that this bird is common; but this is by no means the case, and I believe I have found every nest of it on the Rillito. I never saw the bird along the Santa Cruz River, near Tucson, or in any other part of the Territory where I have been, including a good portion of the Salt River and Gila country." Lieutenant Bendire is evidently observing and collecting with zeal, industry and discretion, in an interesting and little-worked field. Important results are to be anticipated from his labors, and I am sure that other ornithologists join me in wishing him abundant success. — ELLIOTT COUES.

INTELLIGENCE IN MONKEYS. I have two species of *Cebus* in my study, *C. capucinus* and a half grown *C. apella*. They are "Jack" and "Jim," and a friend inquires whether they are not like the James and John of scripture, *sons of Cebidæ* (ee)? Jack displays a thousand traits of monkey ingenuity. He is an admirable catcher, seldom missing anything from a large brush to a grain, using two hands or one. His cage door is fastened by two hooks, and these are kept in their places by nails driven in behind them. He generally finds means sooner or later of drawing out the nails, unhooking the hooks, and getting free. He then occupies himself in breaking up various objects and examining their interior appearances, no doubt in search of food. To prevent his escape I fastened him by a leather strap to the slats of the cage, but he soon untied the knot, and then relieved himself of the strap by cutting and drawing out the threads which held the flaps for

the buckle. He then used the strap in a novel way. He was accustomed to catch his food (bread, potatoes, fruit, etc.) with his hands, when thrown to him. Sometimes the pieces fell short three or four feet. One day he seized his strap and began to throw it at the food, retaining his hold of one end. He took pretty correct aim, and finally drew the pieces to within reach of his hand. This performance he constantly repeats, hooking and pulling the articles to him in turns and loops of the strap. Sometimes he loses his hold of the strap. If the poker is handed to him he uses that with some skill in the recovery of the strap. When this is drawn in, he secures his food as before.

Here is an act of intelligence which must have been *originated* by some monkey, since no lower or ancestral type of animal possesses the *hands* necessary for its accomplishment. Whether originated by Jack, or by some ancestor of the forest who used vines for the same purpose, cannot be readily ascertained.—Edw. D. Cope.

GEOLOGY.

A Glacial Phenomenon. — On Sunday afternoon the writer of this visited the shore of Lake Winnebago,* at the foot of Washington street, and found the ice in the lake apparently solid, with the exception of a narrow strip about twenty feet wide, extending along the shore as far as could be seen. In this belt the ice had thawed out, leaving an open space of water. During Sunday night, as will be remembered, a severe snow-storm came up, accompanied by a fierce east wind, blowing almost a hurricane. On Monday morning the ice in immense cubes was piled to the height of from twenty to twenty-five feet along the shore forming a huge breastwork two or three rods in width. So powerful was the force with which the ice moved that large boulders two or three feet in diameter were lifted high in the air. Trees growing on the beach were broken square off, and in one or two cases torn out bodily by the roots and carried several rods. About half way between Washington and Merritt streets, a large basswood tree about two feet in diameter formerly grew on the beach but a few feet from the water. Now its trunk and roots lie at a distance of thirty or forty feet, carried there by the irresistible

*Lake Winnebago is in Wisconsin. It is twenty-eight miles long and ten wide, covering an area of two hundred and twelve square miles. Similar phenomena occur on other small lakes throughout the north-west.